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# The Aristotelian Doctrine of Qualitative Change in Physics VII.3

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THE ARISTOTELIAN DOCTRINE OF QUALITATIVE CHANGE IN PHYS. VII, 3.

Prof. G. Verbeke

The text that we shall try to analyse and to interpret in this exposition is of particular philosophical interest: Aristotle wonders whether it is possible to translate into terms of qualitative change the most important activities of man, such as technical activities, culture of the body, moral conduct and scientific knowledge. The question is thus one of a confrontation between the notion of qualitative change on one hand and certain fundamental forms of the human activity, on the other: such a confrontation makes it possible to define even more precisely the notion of alloiosis and to lead us to a more thorough understanding of the distinctive nature of properly human activities.

In order to answer the needs of every day life and embellishment, man builds himself houses, beds, tapers, statues and other artificial objects that constitute his life sphere: but can we state that this is question of qualitative change introduced by man in a preexisting matter? An analogous question can be asked about the acquired dispositions both corporeal and psychic. Can beauty and strength of body, acquired by assiduous and regular exercise, be considered as qualitative changes? Do the moral virtues introduce into a human existence qualitative modifications of such kind that their acquisition or loss would constitute a change that would be situated on the level of the qualitative equipment? Finally, can the intellectual activity be considered as an alloiosis or does it belong to another category while eventually being accompanied by qualitative change? These are the principal questions Aristotle tries to answer in the text we are discussing.

Before starting the analysis of the answer Aristotle offers, we have to point out that it has come to us in double redaction, one considerably shorter than the other. According to Sir David Ross the most developed version, which he called version Alpha, must have been written by Aristotle himself, while the other version, version Beta, must have been a report of the same lecture or an analogous one, made by a student. Indeed the general line of the exposition is the same in the two texts, but there are differences which make it difficult to admit that the two versions reproduce the same exposition. These differences are of two kinds: the sequence of the ideas is not exactly the same in the two redactions: the example of the finishing of the house by coping and tiling is found in one text in the exposition about technical activity and in the other in the middle of the exposition about corporeal dispositions. Moreover certain developments that can be found in version Alpha are absent in version Beta.

Even when the redactional differences are omitted it can be seen that the content and the sequence of the ideas are not entirely the same in the two texts. May it not be concluded then that this double redaction has to be ascribed to Aristotle himself? In this hypothesis it is easy to understand that version Alpha contains developments that are absent in version Beta and that the sequence of ideas is not entirely the same in the two texts.

Let us look now at the context in which Aristotle's exposition about the qualitative change occurs. To this purpose it is indispensable to analyse

the logical structure of the arguments developed by Aristotle in the course of the first three chapters. The master's essential preoccupation is the same as in book VIII: he wants to prove the necessity of a first mover, a principle that is at the origin of the cosmic movement. In other words, a first mover has to be admitted a proton kinoun and we cannot go on without limit in the series of movers and movables that are subordinate to each other: this thesis is important and must be understood in the context of the Aristotelian world. Why this first mover? Experience brings us into contact with movers, which although they may be principles of movement, are not at the origin of the activity they exercise; they are able to move to the extent that they are moved by something else. So they execute their activity in constant dependence on another being, and as a result the movement of the mover and the moved must be simultaneous. The point is important in Aristotle's reasoning: if the mover is not capable of moving by itself, but only through constant dependence on something else, then it will not do anything else but communicate the movement that it receives, and the movement it imparts will be simultaneous with the one it receives. Elsewhere Aristotle admits that the movement of each of the members in the series is one numerically; this means that for the Greek master the movement presents itself as a finite event that is situated between two terms, the point of departure and the point of arrival; a limited time will be necessarily the result, the time that is required to travel a finite distance. Aristotle tells us that the movement happens ek tinos eis ti, it is not infinite as far as extremities are concerned. Indeed movement has been interpreted in terms of potency and act: one is in potency in relation to a determined perfection that represents act. The progress that leads from potency to the act thus constitutes a limited course in a limited time. If the point of departure is the same as well as the point of arrival and if moreover the time is identical, the movement is numerically one.

If there is no first mover, the series of movers and movables is infinite. The result will be that the movement of all these movers and movables will be infinite too. Nevertheless there will have to be a limited time because all these movements are simultaneous and will, consequently, end in a finite time, because the movement of each of the members of the series is limited. One ends thus in a deadlock: an infinite movement would have to be done in a finite time. Aristotle continues his argumentation by answering an objection: Could we not escape this deadlock by admitting that each particular movement is finite, but that an infinite movement is possible in a limited time, if the number of the movers and movables is infinite? Aristotle answers that the infinite number of movers and movables constitutes a unity; indeed all those movers and movables have to touch each other, so that they may communicate the movement to each other. It is of no importance for the reasoning whether that unity is finite or infinite: important is that the movement is infinite in any case on account of the infinite number of movers and movables and because such a movement cannot be done in a limited time. Why is this movement necessarily infinite if we do not admit a first mover? Aristotle would answer: the movement of an infinite is infinite. If there is no first mover, the series of movers and movables is infinite and accordingly their movement is infinite. Yet the movement of each of the members of the series is necessarily finite and occurs in a limited time and because the movements cause each other, they all are simultaneous and happen in a limited time. The antinomy is confirmed: an infinite movement cannot be realized in a limited time. Consequently a first mover

has to be admitted as a principle of all movements. An essential point of the reasoning is without any doubt the simultaneousness of the movements: if the movement of all these movers and movables is simultaneous, it necessarily is finite and we end in the deadlock mentioned above. For Aristotle this simultaneousness is not only realized in the case of local movement, but also in the case of qualitative change. In this last case, the mover and movable touch each other without intermediary of any kind: it is because they touch each other immediately that their movement is simultaneous. Each genuine alteration is produced by sensible principles that cause a determined modification by means of a direct action. This is true for sensible perception (sight, hearing, smell, taste) where the extremity of the altering principle and the beginning of the altered are together. Let us take the example of the sight: we could believe that there is no continuity between the perceived object and the corporeal organ. That is not the case: the air is contiguous to the perceived object and the body is contiguous to the surrounding air. This is the essential for Aristotle: if a mover, itself moved, moves a movable, then they touch and in that case their movement is simultaneous. It is in this general context that Aristotle's exposition about qualitative change is situated. What will be then the central preoccupation of this exposition?

This will be to prove that in the case of alteration the mover and the movable touch each other without intermediary and that, consequently, their movements are simultaneous. That's why he affirms, right from the beginning of this chapter, that alteration may occur in a being that is capable by itself, i.e. by nature, of undergoing the influence of a sensible cause. He thus wants to avoid activities, which, while being accompanied by qualitative changes, are not themselves qualitative changes. It is from this point of view that he wonders whether the making of a tool or the acquisition of a corporeal ability, a moral virtue or an intellectual knowledge can be considered as an alteration. In all these cases Aristotle's answer is negative: from his point of view he wants to eliminate from his notion anything that might endanger the value of his argumentation to prove the existence of the first mover. But at the same time he states his views on the nature of the superior activity of man, which views are particularly interesting, especially those on the nature of knowledge. Since it is qualitative change that is treated, let us first see how quality is defined in the treatise On The Categories.

According to chapter VIII of The Categories the term "quality" is explained in different ways:

1. The first use of poietes is to indicate a habit or a disposition; according to Aristotle there is a distinction to be made between the two: a habit (exis) is more lasting and permanent than a disposition (diathesis). The examples he proposes are: science and virtue: they are firmly fixed in man and cannot easily be moved. On the contrary, mere dispositions, as warmth, coldness, disease, health and other qualities of the same kind, can be changed easily. Of course a habit is always a certain disposition, but it cannot be admitted that every disposition is a habit.
2. The same term could also mean a natural capacity or incapacity, to be distinguished from a mere disposition. The main examples introduced by Aristotle are those of the runner, the boxer and the man with good

The third meaning concerns the affective qualities and affections, as sweetness, bitterness, sourness, heat, cold, whiteness, blackness and so on. These qualities are called "passive qualities" not because the things that possess them are affected in any way, but because each of the said qualities is able to produce an affection on the level of perception. Colours however are not called passive qualities in the same way as the others: they are passive because they are generated by a certain affection. There is again a distinction to be made between qualities and affections: qualities are characteristics which last during a long time, even during one's entire life. So we may say that on the level of the soul there are some firm characteristics, as irascibility or madness, which are called qualities, while the same characteristics when they are easily lost are said to be affections.

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In any case it is important to note that the correspondence between The Categories and the exposition of the Physics is not complete: in this last text Aristotle does not take into account the second significance of poiotes, mentioned in The Categories i.e. natural capacity or incapacity. If the acquisition of a natural capacity depends on generation and is consequently no alteration, as Pacius pretends, why does not Aristotle say so? If on the contrary, it is obvious that the acquisition of a natural capacity constitutes an alteration, why does the Stagirite not talk about it?

The disagreement that we find here between the doctrine of The Categories and that of the Physics may be added to other and much more important points of difference between this little treatise and the Aristotelian work. Indeed, it is known that the authenticity of the treatise On The Categories has been put in question.

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Technical activity (245 b 9 - 246 a 10):

First argument (245 b 9 - 246 a 4):

The first argument attempts to prove that a change in figure and shape is not an alteration. We have to distinguish between the content and the nature of the argument:

- 1) The content: when a certain matter is moulded and is given a new shape, it is not subject to alteration. For alteration is a mere change of quality: therefore the altered thing retains the same appellation as before; for instance, water getting warm or cold, doesn't lose its denomination: it is still called water, even when it is warm or cold. This is not the case when a change in the external form has been introduced: when a ship or a bed has been made out of wood, it no longer carries the name it had before; it is no longer called "wood", but "wooden bed" and Aristotle concludes that when a certain matter is given a new shape through human activity, as in the case of the making of a bed or a ship, it is not altered.
- 2) The nature of the argument: the argument is based entirely on predication or more generally on human language: such a way of reasoning is very common in the writings of Aristotle. It means that the Stagirite attaches a great importance to common opinions, especially when they are very ancient and generally admitted. Such opinions couldn't be erroneous, for if they were false, it would be against the finality of nature, it would be in contradiction with the teleology admitted by Aristotle. Of course the way of speaking must be taken as the expression of very ancient and universally admitted opinions. So the argument gets an outstanding value in the eyes of the Greek philosopher.

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Second argument (246 a 4 - 10):

We have to distinguish again between the content and the nature of the argument:

- 1) The content: Aristotle now comes to the question of generation: can the generation of a man or a house or of whatever is generated, be considered as an alteration? The answer is negative: generation is not an alteration and things generated are not altered. Generation, however, might require a previous alteration; in other words generation is only possible by a certain alteration of the matter, for instance a condensation or rarefaction or calefaction of refrigeration. The matter must previously be prepared in order to receive a certain form: an egg has to be warmed so that the generation of a chicken may be possible. Aristotle thinks we have to distinguish between necessary conditions, previous requirements and generation itself.
- 2) The nature of the argument: Aristotle clearly wants to avoid the danger of confusion between generation itself and its previous conditions: it is not because generation requires an alteration of matter in order to become possible, that generation itself is to be considered as an alteration. Of course, the term "generation" is taken in a very broad sense, for it is applied also to the building of a house; so it is larger than the realm of living beings, it also bears on the production of artificial things. Aristotle says it would be absurd "to say" that a man or a house, when



generated is altered. Again the argument is based on human language; in ordinary speech the construction of a house or the birth of a man are not called alterations, even if they are preceded by an alteration of the matter.

Corporeal habits (246 a 10 - b 20)

**First argument** (246 a 10 .. b 2):

As for the habits a distinction is to be made between good habits, which are called virtues, and bad ones, which are called vices. According to Aristotle neither of them can be considered as an alteration. What is the reason? In the opinion of the Stagirite virtue is always a completion, a finishing or perfection. Everything is said to be perfect, when it has got its own virtue: for in that case it realizes in the highest degree what it is by nature.

For instance a circle is perfect when it is "circle" as well and as much as possible: so each virtue is a kind of completion of a being according to its own nature. Every being reaches its perfection when it realizes its own nature to the utmost degree. According to Aristotle the notions of alteration and perfection are not to be equated: it would be absurd to say that the coping and the tiling of a house are alterations, or to admit that a house' getting coping and tiling is altered.

The same argument clearly applies to vices also: they are not alterations, but disturbances or imperfections.

The very nature of the argument is quite clear: a habit could not not be an alteration; indeed there are two kinds of habits, i.e. virtues and vices, and **neither** of them is an alteration, for virtue is a perfection, a finishing, while vice is an imperfection. The argument of Aristotle couldn't be understood without remembering that the author is talking about corporeal habits, that means about steady and firm qualities, according to the distinction proposed in The Categories between habits and dispositions. The two examples given by Aristotle are taken out of the world of corporeal being, namely a circle and a house. One could object to Aristotle that he is talking again about figures and shapes, as in the first part of the chapter. Nevertheless the point of view is not the same; in our text Aristotle is not immediately concerned with the shape of a circle or a house, but with the perfection or imperfection of the two; in other words he is concerned with the virtues and vices of corporeal beings.

The thesis put forward by Aristotle can be summarized as follows: the process by which the perfection or imperfection of a corporeal being is realized is not, strictly speaking, an alteration.

Second argument (246 b 2 - 20):

In the second argument Aristotle is still talking about habits of corporeal beings; according to him all these habits exist in a certain relation, they should be thought of as a way of being in relation to something. The relation itself may be internal or external: as an example of internal relation one may refer to health or well-being, which can be reduced to a balanced mixture of heat and cold; and same can be said about other virtues and vices, as for instance bodily beauty and strength. The relation can be external as well: that means the relation of a corporeal being to its environment. By corporeal virtues and vices a subject is well or badly disposed towards its particular affections: by "particular affections" we have to understand such affections by which naturally a being is generated or corrupted.

So the basis of the argument is the relative nature of corporeal habits. Aristotle introduces a general principle: what is entirely relative cannot be subject either to an alteration or to a generation or a change. Corporeal habits themselves couldn't be alterations, nor could their acquisition or loss be an alteration. However, it is quite possible for corporeal habits to be generated or corrupted in consequence of an alteration; in other words alteration may be a necessary condition for the acquisition or loss of corporeal habits. For every virtue and every vice is concerned with those things the subject is naturally disposed to be altered by. Aristotle means of course such elements as warmth, coldness, wetness, dryness, through the alterations of which health or disease of the body is produced.

The virtue of the body makes it impassive to external influences or passive in a suitable way, while vice makes it passive or impassive in the opposite way. The argument of Aristotle is based on Physics V, 2 (225 b 11); there is strictly speaking no change in a relative being; for if one of the terms is changed, there will be a change in their mutual relation, even if the other term remains what it is. Aristotle concludes that a change of a relative being is only accidental: it depends on the situation of the two terms of the relation. Taking into account that a corporeal habit is a relative being, we may conclude that it couldn't be considered as an alteration.

About the relative nature of corporeal habits, cfr Arist., Eudemus fr. 7 (Walzer); Top. 116 b 17; 139 b 21; 145 b 8; Metaph., N, 1, 1088 a 22 seq.; Plato, Rep. 591 b; Phil. 26 b; Laws 631 c.

Habits of the Soul (246 b 20 - 247 a 19)

First argument (246 b 20 - 247 a 2):

This argument is not explained, it is only indicated, because it has already been exposed before. The habits of the body are a certain way of being in relation to something, in other words they are entirely relative; therefore, no alteration of them is possible. The same can be said about habits of the soul.

Second argument (247 a 2):

The same proof has been advanced about corporeal habits: some of them are perfections, other are deviations. In no case can they be considered as alterations.

Third argument (247 a 3 - 5):

This is also an argument already exposed in relation to corporeal habits: the virtue of the body creates a good disposition towards the own affections, while the vice is the source of a bad disposition. The same may be applied to the virtues and vices of the soul: their acquisition or loss is not an alteration and they are not alterations themselves.

Fourth argument (247 a 5 - 19):

Virtues and vices of the soul are not alterations; nevertheless, they couldn't be produced in us without a previous alteration. First of all, it is to be noticed that Aristotle is speaking here about moral virtues and vices: according to him all of them are concerned with corporeal pleasure and pain, which always imply an alteration of the sense organ by sensible objects (Cfr Eth. Nic., II, 3, 1104 b 8 - 1105 a 13; VII, 11, 1152 b 5; X, 8, 1178 a 14; Magna Mor. II, 7, 1204 a 29; Politica, VIII, 5, 1340 a 15). Indeed every pleasure consists in an action or a remembrance or a hope, which always arise from a certain alteration of the sense-organ. This is very clear in the case of present pleasure: it is produced in us while the sense-organ is moved by a pleasant object; just as pain is caused by the action of a painful object. Now it cannot be doubted that the other ways of pleasure and pain result from this present sensation: for a remembrance is no more than the memory of a past sensation; as the hope is the expectation of a future one.



So it appears that according to Aristotle pleasure and pain are produced by a sensible alteration, or more precisely by the alteration of our sense-organ, moved by a sensible object. Moral virtues and vices are concerned with pleasure and pain: so it is quite evident that moral virtues and vices are generated or corrupted in consequence of an alteration. In other words, the generation of moral virtues and vices is necessarily accompanied by an alteration, without being itself an alteration.

According to Aristotle the acquisition or loss of virtues and vices are not alterations, but habits, produced by the activity of man, as a result of similar actions. The core of the argument seems to be that virtue and vice being concerned with alterations, couldn't be themselves alterations.

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### Intellectual habits (247 b 1 - 248 a 6)

#### First argument (247 b 1 - 3):

It is the same argument as has been brought forward previously in relation to the corporeal habits and the habits of the soul: they also should be considered as a certain way of being in relation to something; in other words, their status of being is a relative one. Aristotle proposes only one example, namely that of science; however the same can be said about other intellectual habits as art, prudence, etc.

What is the argument? According to the Stagirite a relation may be changed without any change in the subject of the relation: when I am standing at somebody's right, I may come to stand at the same person's left without any movement of mine, simply because the other person has come to my right. The same occurs in the case of science: it is generated in our mind without any change of it: indeed it is produced in us by the presence of something else, namely by the presence of images in our imagination, whose contemplation is science. For according to the Metaphysics (I, 1) and the Posterior Analytics (II, 19), an experience is formed out of many particulars whose images have been perceived by the sensitive faculty, and out of many such experiences a universal concept is generated: such knowledge of the universal is characteristic of science and art. Therefore the first principles are proved by induction. So we can say that science depends on the presence of images in our imagination and on the contemplation of them by the intellectual faculty. Science doesn't mean a change in the intellectual faculty, but a change in the imagination. So the relation of the intellectual habit is changed without any change in the subject of it.

#### Second argument (247 b 3 - 7):

This argument is based in a certain way on the similarity between intellectual activity and sense-perception: there is no generation of seeing and touching. Indeed these perceptions depend on the presence of an object, in other words perception is not an alteration of the sense-organ. So the intellectual activity may be compared to perception: there is no generation of intellectual activity. The exercise or use of a science cannot be considered as a generation.

#### Third argument (247 b 7 - 13):

The first acquisition of a knowledge is no generation. Indeed when we are doubting and are uncertain, our mind is moving, it is searching for truth, it doesn't know and asks questions. But when it comes to knowing, when it reaches truth and science, it comes to rest. Knowledge means rest of our mind. Speaking about verbs Aristotle says in De interpretatione (3, 16 b 19) that they have a significance by themselves: somebody pronouncing a verb, brings

the hearer's mind to rest and fixes his attention. According to Aristotle science may be identified as a kind of rest; the acquisition of science is a coming to rest; that's the original meaning of the Greek verb epistasthai. If knowledge consists in the rest of the intellectual faculty, the acquisition of knowledge wouldn't be a generation or an alteration.

Fourth argument (247 b 13 - 248 a 6):

Aristotle is considering now the case of a man who has a certain knowledge: now he might be prevented from using the science, should there be any disturbance of the imaginative faculty. Indeed he should establish the possibility contemplating quietly the images in the imaginative faculty. Pacius gives the example of images reflected in water: when the water is moved, we cannot see distinctly the images reflected in it; but it is quite easy to see reflected images in calm water.

So it is when our imagination is not troubled by our affections, but is kept calm and quiet by moral virtue. Instead of the example of water, Aristotle proposes three other examples to explain his argument: drunkenness, sleep, and illness. They prevent us from knowing, not because they immediately influence our intellectual faculty, but because they disturb the images which are contemplated by the mind. When a man awakens out of his sleep, his mind immediately comes to knowing not by a change in itself, but by a change in the imaginative faculty. In the same way when a man acquires science at first it is not by a change in his mind, but by a change in the imaginative faculty. Therefore children are not capable of knowing in the same way as older people, because there is much disturbance and movement in their imaginative faculty. Later on, when this trouble has been taken away by nature (getting older) or by other causes (teaching and exercise), they become also capable of authentic knowledge.

In each case knowledge is preceded by a corporeal alteration, without being itself an alteration.

One may conclude: alteration only occurs in sensible realities or in the sensitive faculty of the soul; it doesn't occur in the moral and intellectual faculties, unless accidentally as far as the imaginative faculty has been changed.

### How does Aristotle conceive human activity?

By way of conclusion it is important to analyse more profoundly some passages of our text in order to bring out the philosophical teaching.

#### 1. The nature of knowing.

Aristotle wonders whether the acquisition of our intellectual knowledge may be considered as a qualitative change of the knowing subject. To answer this question the Stagirite is obliged to question the nature itself of knowing or of thinking. The essential problem for him is the following: is thinking a movement? If thinking is a transition from potency to act, can we not admit then that such a passage is a kind of movement? Yet Aristotle gives a strictly negative answer. He admits that thinking may be accompanied by an alteration. Why is it that children are less capable of knowing and judging than older persons? It is on account of the restlessness and multiple movements that occur in a young organism and that one only brought to peace with the progressing years. The exercise of thinking can thus be hindered or hampered by disturbances of the corporeal organism: somebody who passes from the state of sleep to the state of waking or from drunkenness to soberness undergoes also a certain alteration. Nevertheless it remains true that thinking cannot simply be reduced to a qualitative change.

Instead of being a movement thinking, as well as moral virtue, appears to be rather a state of rest or immobility (Eth. Nic., II, 2, 1104 b 24; Eth. Eud., II, 4, 1222 a 2). It is not on account of a movement that we pass from ignorance to knowing, but by the presence of something else, namely through the presence of a sensible image, the contemplation of which constitutes a knowing; for, in some way, we know the particular by the universal.

In the first book of the treatise On the Soul (407 a 32) Aristotle makes an allusion to the same doctrine: intellectual knowing looks more like a state of rest and quiet, than like a movement.

In De Interpretatione (16 b 20) we again find the same idea: speaking about verbs Aristotle says that they themselves are nouns and possess a determined significance because the person who pronounces them, fixes the thinking of the listener who puts it immediately at rest. To know is thus to come to a state of completion; it is no longer to be in suspense in a state of insatisfaction and waiting. The most fully elaborated text is found at the end of the Posterior Analytics (100 a 6 ssq.): Aristotle treats there the different stages we have to go through to be able to grasp the universal, to begin with the sensible perception over the memory and the experience to come to the stage of proper intellectual knowing, that of art and science. While art is concerned with the becoming, science on the contrary looks only to the being. Aristotle affirms here formally and repeatedly: the universal is entirely at rest in the soul as a unity outside of the multiplicity, residing as one and identical in all particular subjects. It is the particular sensation that will serve as point of departure in the formation of a universal notion. In the first degree this notion will be the notion of the species acquired from the

knowledge of particular beings, because it is in the particular that we will reach the specific nature. However, this universal notion will not be a definitive stop of our thinking. On the contrary it can be a new point of departure to arrive at more universal concepts and finally to reach the first principles. Nevertheless it remains true that each universal is at rest in the soul and that it is object to contemplation, which remains identical to itself. In all these texts knowing is represented as a stop, at least a temporary one; thinking is not in search of an object, it possesses the object and stops before it to contemplate it.

What is now the origin and the philosophical bearing of this doctrine? There is no doubt that the concept of knowledge as a stop and rest can be found already in Plato's dialogues. In the *Cratylus* (437 a) they enter upon the etymology of the term epistēmē: this word seems more to mean that it stops (histēsi) the soul before objects rather than accompanying their movement. The same etymology is proposed for the word historia: it would mean itself the stop of the flow (histēsi ton roun). The same is true for the term piston, which also means a stop, or more literally "stopping" (histan). As far as the word mnēmē is concerned, it would indicate a stop in the soul and not a transport (monē in opposition to phora). It is obvious that these etymologies have grown out of a certain conception of knowing, rather than being the origin of such a doctrine: in all the terms that have something to do with knowing a root of stability is sought.

In the *Phaedo* (96 b) Socrates asks the question what can be in man the organ of thinking: is it the blood, as Empedocles believed, or the air, as Diogenes of Apollonia thought, or the fire, as in the philosophy of Heraclitus? Still another conception is looked upon, probably of Alcmaeon of Croton; according to his doctrine the organ of human thinking would be the brains: they would give birth to sensations of hearing, sight and smell and they at their turn would produce memory and opinion, once memory and opinion have acquired their stability (to exemein); real knowing would be born through this process (Diels-Kranz, *Vors.*, I 24, A 11 and A 5). In Plato's view concern about stability is easy to understand: for him any knowing worth of that name is related to an immutable object and since there has to be relationship between the known object and the knowing subject, stability will be the principle of science itself (79 d, cfr 83 a).

The same idea is also to be found in the *Meno* (97 d-98 a; cfr *Euthyphro*, 11 b-d, *Gorg.* 527 b): speaking about true opinions Socrates estimates their value rather relative, because they escape easily from the soul. In this respect they resemble the statues of Daedalus that have to be fixed to remain on their places. In turn true opinions have to be linked up with causality reasoning: then they become science, and they reach stability. Where can this stability come from but from the world of Ideas? It is through connecting the true opinions to the world of immutable Ideas that they are lifted to the level of authentic knowing. Therefore a true opinion may not be considered as scientific knowledge, because its object is not immutable: as long as it does not transcend the changing reality of becoming, it cannot have access to the level of true knowing. On the contrary the one who grasps the Ideas is in possession of a knowledge that is above the opinion. In his *Meno* Plato speaks



about a knowledge that is intermediary between opinion and science: true opinion made stable through its connection with the world of the immutable by means of a reasoning of causality. Being connected with the immutable the true opinion becomes stable.

Plato enters upon the same problem in his *Sophist* (248 e): if everything is in movement, knowing is not possible anymore. And what if everything is immovable? In that case thinking as well as life seem to be impossible. To admit total immobilism of everything that exists is to give up any thinking. Being in its totality contains everything that is immobile and everything movable: to deny one or the other of these aspects is to engage in insolvable antinomies.

Must it be admitted then that thinking is a kind of movement? Plato never says this, although he does recognize that to think is to act and it is even the most intense activity that man can practise. That is why thinking is inconceivable in an entirely immobile world: nevertheless it remains true that the authentical knowing has as its object the immutable Ideas. Can the intuition of an immutable reality be a movement? What is the problem then that Plato propounds in his *Sophist*? A choice has to be made between immobilism and mobilism; neither of the two theses present seems to be acceptable and that in name of the nature itself of human thinking. If this nature consists of acting with the immutable object, why couldn't movement and stability be admitted at the same time? In Plato's view thinking is not an ordinary movement, but rather an act of contemplation with the immutable forms as object. It is at the same time an activity and a rest. Plato, as Aristotle, maintains that childhood and youth are periods that are not favourable to reflection: the reason is that the activity of the mind is hindered by the movements and disturbances of the corporeal organism and by affections of all kinds. At the time of birth, when the soul is chained to a mortal body, it doesn't dispose of the use of its intellectual faculties (*Timaeus*, 43 a-44 a): this doctrine seems to be inspired by Alcmaeon of Croton; in one of the fragments that are attributed to him we read that man can think as long as his brains are at peace (*Hippocrates, De morbo sacro*, 14). According to the same author all sensations are in some way connected with the brains; when they are disturbed and in movement, the sensitive life cannot be practised normally, because the channels through which sensations occur, are hit and obstructed (*Theophr., De sens.*, 25).

This leads us again to the other aspect of the same doctrine: if knowing is conceived as a quiet or a rest, thus it is normal that it might be hindered by disturbances of the corporeal organism. If Plato and Aristotle conceive the intellectual knowledge to be a kind of immobile look or stop, this doctrine can be explained by a threefold point of view: first the etymology of the term *episteme*, secondly the physiological conceptions of Alcmaeon of Croton and finally the theory of Ideas. Consequently to state that knowing is rest implies that the object of knowing must be stable and that the intuition of the knowing subject must be stable, this means particularly that it may not be troubled by movements of the body nor by passionate elements.

## 2. Psychical activity and alteration.

As Trendelenburg remarked in his commentary on De Anima (Berlin, 1877, p. 299) Aristotle clings strictly to the etymological significance of the term alloiōsis, in fact it is a question of "becoming different," of "an alteration," a becoming other or a growing to otherness; that what is subject to an alloiōsis really becomes something different. "In quo premenda est graecae vocis notatio; significat enim alloiōsis quasi alienationem, ita ut res in aliam rem abeat" (Trendelenburg, op. cit., p. 250). That is the reason why alteration is applicable to realities of the sensible world and why it cannot be applied to psychical activities. These are seen by the Greek master as perfections, situated in the line itself of the possibilities of a being. There is thus in Aristotle's mind a clear distinction to be made between realizing one's own perfection, developing into the direction of one's possibilities on the one hand and becoming different, i.e., to undergo the influence of an exterior reality in such a way that one is transformed in one's way of being at the other hand. In a teleological view each being has to realize a determined end in relation to what it is in potency; to actualize this potency is not to become different; on the contrary, it is to become more what it is, it is to reach the achievement of its being, it is to become entirely what before it was imperfectly. In a passage of his De Anima (II, 5, 417 b 6 ssq.) Aristotle speaks about an epidosis eis auto (and not eis allo) which means that the being in question realizes its own perfection. That's why the master adds: kai eis entelecheian. This is not so in the case of the alteration. Trendelenburg translates the Greek term alloiōsis by "alienatio": instead of becoming entirely what it is, the being that undergoes an alteration, is alienated from itself, it digresses from what it is to become different: undergoing the influence of the exterior world, it abandons its way of being to adopt another one. In the same context of the second book of De Anima (II, 5, 417 b 2 ssq.) Aristotle tells us that the notion of passivity is not a simple one: one may be passive in two entirely different ways. There is first the destructive passivity: a way of being is destroyed by means of an action of a contrary quality. In that case it is right to speak of a certain destruction (phthora tis); the being in question is really passive, when it acquires a new quality while losing a previous one. Thus the acquisition of a new way of being will never be a pure and simple progress it implies always a certain loss. In this case we could say that a reality is destroyed by becoming different, or more precisely that this reality suffers a destructive action produced by something else, which makes it take on a new way of being.

On the other hand there is a perfective passivity which provides for the acquisition of a perfection that answers the latent potency of a given reality; in that case the being in question doesn't undergo the influence of an opposite quality; in other words there is no destruction, but a going from potency to act under the influence of an act. Is there no influence working from outside? Certainly, but this influence doesn't work between two opposite terms, one of which triumphs over the other. In the first case there is a destruction, because the influence originates from an opposite quality; here we can speak about an achievement, because the influence is exercised by a similar term that possesses in act the quality that the other possesses in potency. Aristotle applies it in the field of

knowledge: someone habitually possesses a scientific knowledge; at certain moments he doesn't use it, but at other moments he goes over to the effective exercise of his knowledge. Is it an alteration? Aristotle answers negatively; it is not a question of an alteration, unless we call it another kind of alteration. Indeed in this last case there is no passage to a state of privation, precisely because in case of development nothing is destructed. A being develops itself in the sense of its usual dispositions and its nature, without a loss of any kind under the influence of an opposite quality. We could object that in this last case a being becomes also something different from what it was before. Nevertheless it is not the question here of "becoming different": for what it makes go into act, is not properly the other, but the similar and the act itself is situated in the line of the nature of this being when it was in potency. Posing the act of thinking is thus not an alteration as neither is the exercise of a technical activity: an architect does not undergo an alteration when he exercises his art.

In Aristotle's view movement is essentially unfinished, imperfect, because it belongs to a movement to be oriented to a term, and not to possess the end in itself (Arist., De Anima, III, 7, 431 a 4). All movement is but a progress to a term and only takes its meaning from the nature itself of this term; it is a passage going from a point of departure to a point of arrival. All Aristotle's attention in his philosophical analysis of movement concentrates on the two terms: the passage is not the center of his attention and he often has been blamed for it. What is true for movement in general is also applicable to alteration in particular. Can we say that the sensitive faculty undergoes an alteration on account of his own object? Aristotle denies it; here it is not a question of an alteration nor of a true passivity, but of another kind of movement, namely what he calls aplōs energeia, an activity in the absolute sense. What does the proper perfection of the sensitive faculty consist of? Is it not the exercise of its activity?

The sensible object makes thus the display of the possibilities of sensitive potency possible: it doesn't become different through the exercise of perception, it becomes even more what it is. Because the end of the activity is not situated outside of the exercise itself, we can say that at the same time "we see and have seen, we conceive and have conceived, we think and have thought" (Metaph. 6, 1048 b 23 ssq.). By means of this elliptical expression Aristotle translates a fundamental doctrine of his psychology, about which he wondered whether it belonged to the philosophy of nature. By stating together both the present and the perfect of the verbs to see, to conceive and to think, the Stagirite wants to express that in the case of the psychical activities the perfect, i.e. the term, the end, is in the present. The actual exercise of the action constitutes the end; this is not to be looked after outside the activity itself; in other words, the action is not in search of a good that would exist outside itself. That's why psychical activity is not an ordinary movement, but a energeia in the absolute sense.

Speaking about the act of seeing, and this is applicable to all sensible knowledge, Aristotle tells us that it is perfect at each moment of its duration: the act of seeing is not realized progressively, in terms of an evolution; right from the beginning it realizes entirely its

proper perfection (Eth. Nic., X, 4, 1174 a 14). The same can be said about pleasure according to Aristotle's vocabulary: it forms a whole and is thus not a movement; certainly pleasure is realized during a more or less long period, what doesn't mean that the proper form of pleasure would only be reached at the end of this evolution. At each moment of the duration the essence of pleasure realizes itself more fully and thus it doesn't become more perfect during the following moments (Eth. Nic., X, 4, 1174 b 13).

If this is true for the sensitive activity the same will apply to speculative thinking: possessing in itself its proper pleasure, it is not in search of an end that is situated outside of it. That is why we can say that this activity is selfsufficient, it enjoys a true autarchy, can exercise itself indefinitely for as much as man is capable of an illimited activity. Speaking about the activity of God, Aristotle tells us that the first being enjoys always a unique and simple pleasure, because his nature is not complex as ours, for there is not only an activity of movement but also an activity of immobility (energeia akinesias) and the pleasure consists more in stability than in movement. For man the same object may not always be pleasant because his nature is not simple; its nature includes, inasmuch as it is corruptible, a second element different from the first one. When one of the elements is in activity, then this activity is against nature from the point of view of the other one. If man needs change, it is in some way because he is lacking, for any nature that needs change, is lacking, then change is essentially imperfect (Eth. Nic., VII, 14, 1154 b 20 ssq.).

The sphere of movement then strictly speaking is thus that of the material world: for as much as man takes part in it and is inserted in it, he himself will also be subject to movement. But the nature of man is not simple, even while being inserted in the movement, he overcomes it by his psychical activity. This activity may not be translated in terms of movement, it is not something essentially imperfect that finds its achievement in the acquisition of an end; it realizes itself fully at each moment of its exercise. It is thus an activity of immobility, as far as it is realized in purity.

Let us look now at moral action: can it be translated in terms of alteration? By no means and that on account of the reasons we have developed above: while acting morally man does not become "an other one" he becomes fully himself, he realizes his latent possibilities. Moral good is not alien to man; it is not a kind of a present or reward that is offered to him from the exterior. The moral good is situated in the line of the human nature, it is nothing else but the exercise of the most perfect activity man is capable of. To become a good man one has not to become different, but fully himself, because each man is above all his, intellectual principle (Eth. Nic., IX, 4, 1166 a 17)).

Moreover the end of the moral action is not to be found beyond this action. Aristotle repeats it: the eupraxia is the end (Eth. Nic., VI, 2, 1139 b 3; 1140 b 6). The moral man practises the good for itself, not looking for anything beyond this action. It is even an indispensable condition of the moral action not to be subordinate to something else: he who practises the good for another reason than the good itself, situates himself outside the really moral perspective. In that respect



there is a clear difference between technical activity and moral action: the first is oriented towards a distinctive product of activity, for example, a house or a bed, while the second finds its achievement in itself and has to be chosen for itself.

If the eudaimonia or human perfection consists in the exercise of the speculative thinking, that is to say in the most noble activity man is capable of, we understand this activity is not subordinated to an ulterior finality, but that it would be an end in itself.

Let us by way of conclusion make a brief summary of what we have said: in Aristotle's view it is impossible to translate the properly human activity in terms of alteration and that for two reasons:

- a) in exerting the activity that is proper to him, man does not become different, on the contrary he realizes himself fully; properly human activity grows from perfective passivity, through which man's possibilities are actualized.
- b) the exercise of knowing or moral activity does not have its end outside or beyond action itself; this action constitutes a whole, the essence of which is realized fully from the first instant on, precisely because the aim of action is situated in the action.

The act of seeing, conceiving, thinking, acting morally realizes at each moment the fullness of its essence and finds its value in itself.

These precisions are not without interest: they constitute on Aristotle's part an effort to describe the world of the properly human in its own distinctive physionomy.